

**NETWORK-BASED SALES SYSTEM USING BAR CODES AND
OPERATING METHOD OF THE SAME**

Background of the Invention

5 1. Field of the Invention

The present invention relates to a network-based sales system. More particularly, the present invention relates to a network-based sales system for defining bar codes of products 10 and thereby managing distribution of the products.

2. Description of the Related Art

Improvement of a product distributing system has been promoted for selling a large 15 number of various products. To make the product distribution effective, each of the products is given an article number and a bar code corresponding to the article number. The bar code is printed on a package box or a slip of the 20 product and used for managing the distribution of the product.

The number of the article numbers and the corresponding bar codes are increasing because of the increasing variety of products. The increase 25 of the variety of products arises from the diversification of user need. As for a personal computer, for example, a capacity of an

installation memory, a capacity of a hard disc, an installation OS and an application are variously combined. Thousands of combinations are theoretically possible in only one machine.

5 The increase of the number of the article numbers and the corresponding bar codes imposes a heavy load on an EDP (Electronic Data Processing) system of the makers and the merchants. The heavy load forces the makers and the merchants to
10 reduce the number of products. The reduction causes loss of sales chances for the makers and the merchants, and also causes inconvenience of narrower product selection ranges for the users.

Also, the increase of the number should be
15 suppressed, because the number of assigned bar codes is limited for a maker and a merchant. The bar codes are definitely assigned to each of the makers or the merchants. If enormous bar codes are given in advance to the products, the bar
20 code given to a product having no order may be in vain.

It is desirable that the bar codes are effectively used by the makers and the merchants.

25 **Summary of the Invention**

Therefore, the object of the present invention is to provide a network-based sales

system in which the bar codes are effectively used.

In order to achieve an aspect of the present invention, a network-based sales system 5 is composed of a merchant computer, a defining unit, and a distribution managing computer. The merchant computer sends an order of a product. The defining unit defines a bar code of the product in response to the order, and notifies 10 the distribution managing computer of the bar code. The distribution managing computer manages distribution of the product based on the bar code.

In order to achieve another aspect of the present invention, a network-based sales system 15 is composed of a merchant computer, a defining unit, and a production managing computer. The merchant computer sends an order of a product. The defining unit defines a bar code of the product in response to the order, and notifies 20 the production managing computer of the bar code.

In order to achieve still another aspect of the present invention, a network-based sales system is composed of a merchant computer, a defining unit, and an EDP system. The merchant 25 computer sends an order of a product. The defining unit defines a bar code of the product in response to the order, and notifies the EDP

system of the bar code. The EDP system manages stock of a merchant based on the bar code.

In order to achieve still another aspect of the present invention, a network-based sales system is composed of a merchant computer sending an order of a product, a defining unit; a formal product master database to which registered bar codes for formally-registered products are registered. The defining unit accesses the formal product master database in response to the order to see if a product bar code for the product is registered as one of the registered bar codes. The defining unit defines the product bar code of the product to register the product bar code into the formal product master database as one of the registered bar codes when the product bar code for the product is not registered as one of the registered bar codes.

The network-based sales system may be further composed of a distribution managing computer. In this case, the defining unit notifies the distribution managing computer of the product bar code, and the distribution managing computer manages distribution of the product based on the product bar code.

The network-based sales system may be further composed of a production managing

computer. In this case, the defining unit notifies the production managing computer of the production bar code, and the production managing computer manages production of the product based
5 on the product bar code.

The network-based sales system may be further composed of an EDP system. In this case, the defining notifies the EDP system of the product bar code, and the EDP system manages
10 stock of a merchant based on the product bar code.

It is desirable that the network-based sales system is further composed of a tentative product master database having tentative product data concerning tentatively-registered products.
15 In this case, the defining unit extracts formal product data concerning the product from the tentative product master database to register the formal product data to the formal product master database when the product is registered as one of
20 the tentatively-registered products.

In this case, the tentative product data desirably includes prices of the tentatively-registered products. In this case, the formal product data includes a price of the product.

25 Also, the network-based sales system may be further composed of a distribution managing computer. In this case, the defining unit

notifies the distribution managing computer of the product bar code and the formal product data, and the distribution managing computer manages distribution of the product based on the product
5 bar code and the formal product data.

Also, the network-based sales system may be further composed of a production managing computer. In this case, the defining unit notifies the production managing computer of the
10 production bar code and the formal product data, and the production managing computer manages production of the product based on the product bar code and the formal product data.

Also, the network-based sales system may be further composed of an EDP system. In this case, the defining notifies the EDP system of the product bar code and the formal product data, and the EDP system manages stock of a merchant based on the product bar code and the formal product
20 data.

In order to achieve still another aspect of the present invention, a network-based bar code defining system is composed of an order receiving unit receiving an order of a product through a computer network and a defining unit defining a bar code of the product in response to the order.
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In order to achieve still another aspect of

the present invention, a network-based sales method is composed of:

 sending an order of a product through a computer network;

5 defining a bar code of the product in response to the order; and

 managing distribution of the product based on the bar code.

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10 the present invention, a network-based sales method is composed of:

 sending an order of a product through a computer network;

15 defining a bar code of the product in response to the order; and

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the present invention, a network-based sales method is composed of:

providing a formal product master database to which registered bar codes for formally-
5 registered products are registered;

sending an order of a product;

accessing the formal product master database in response to the order to see if a product bar code for the product is registered as
10 one of the registered bar codes;

defining the product bar code of the product to register the product bar code into the formal product master database as one of the registered bar codes when the product bar code
15 for the product is not registered as one of the registered bar codes.

In order to achieve still another aspect of the present invention, a network-based method of defining a bar code of a product is composed of:

20 receiving an order of a product through a computer network;

defining a bar code of the product in response to the order.

25 **Brief Description of the Drawings**

Fig. 1 shows a configuration of a network-based sales system according to an embodiment of

the present invention; and

Fig. 2 shows a process of operating the network-based sales system.

5 **Description of the Preferred Embodiments**

With reference to Fig. 1, a network-based sales system according to the present invention includes a computer network 1, a merchant computer 2, a production managing computer 3, a distribution managing computer 4, a product managing computer 5, a bar code defining computer 6, a sales supporting computer 7, and an EDP system 8.

The merchant computer 2 is provided for operation by a merchant A. The merchant computer 2 sends an order request of a product in accordance with the purchaser's willing.

The production managing computer 3 is provided for operation by a manufacturing department B. The production managing computer 3 manages the manufacture of the products.

The distribution managing computer 4 is provided for operation by a distribution department C. The distribution managing computer 4 manages the distribution of the products.

The product managing computer 5 is provided for operation by a product managing department D.

The product managing computer 5 includes a tentative product master database 5a and a formal product master database 5b. Product data such as article numbers and prices of the products are registered into the tentative product master database 5a. The formal product master database 5b is produced based on the tentative product master database 5a as mentioned below.

The bar code defining computer 6 is provided for operation by the product managing department D. The bar code defining computer 6 respectively defines bar codes for the article numbers. The bar codes respectively correspond to the article numbers. The defined bar codes are registered into the formal product master database 5b.

The sales supporting computer 7 is shared by the merchant A and the product managing department D. The sales supporting computer 7 supports an order reception management and an appointed delivery answer of the product for the order from the merchant computer 2.

The EDP system 8 is provided for operation by the merchant A. The EDP system 8 manages the stock of the merchant A.

Fig. 2 shows the operation of the network-based sales system.

Various data concerning the products are initially prepared for the production managing computer 3, the distribution managing computer 4, and the product managing computer 5 (Step SB1, 5 SC1, and SD1). Manufacture data needed for manufacturing the products are provided for the production managing computer 3, such as article numbers of the products and preparation numbers of parts included in the products (Step SB1).

10 Also, distribution data needed for distribution of the products are provided for the distribution managing computer 4, such as the article numbers and distribution numbers of the products (Step SC1). Furthermore, the tentative product master 15 database 5a is provided for the product managing computer 5 (Step SD1). As mentioned above, the product master database 5a records the product data including the article numbers and the prices of the products.

20 At the steps SB1, SC1, and SD1, no bar code is initially registered into the production managing computer 3, the distribution managing computer 4, and the product managing computer 5. The formal product master database 5b initially 25 records no bar code.

The merchant computer 2 sends an order request to the sales supporting computer 7 (Step

SA1). The merchant A inputs to the merchant computer 2 an article number of a product that the merchant A is willing to order. The order request includes the article number of the 5 ordered product.

The sales supporting computer 7 accesses the product master database 5a to see if a bar code corresponding to the article number is already registered into the formal product master 10 database 5b (Step SD2). If the code corresponding to the article number is not yet defined, the bar code is not registered.

When the corresponding bar code 13 is not yet registered, the sales supporting computer 7 15 accesses the bar code defining computer 6 to send the article number. The bar code defining computer 6 defines a new bar code for the article number (Step SD3). The bar code defining computer 6 sends the article number and the defined bar 20 code to the product managing computer 5. The product managing computer 5 queries the tentative product master database 5a based on the article number. When the article number is registered into the tentative product master database 5a, 25 the product managing computer 5 extracts product data concerning the product having the article number from the tentative product master database

5a. The product managing computer 5 registers the article number, the defined bar code and the extracted product data into the formal produce master database 5b (Step SD4).

5 The registered article number, bar code, and product data are sent to the production managing computer 3, the distribution managing computer 4, the sales supporting computer 7. The registered article number, bar code, and product
10 data are also registered into each of the production managing computer 3, the distribution managing computer 4, the sales supporting computer 7 (Step SB2, SC2, and SD5). The registration process for the product is finished.

15 After the registration process, the sales supporting computer 7 sends a registration report informing the registration completion to the merchant computer 2. The merchant A notices that a regular order of the product can be proceeded
20 (Step SD6). The merchant computer 2 sends a regular order request of the product (Step SA2).

At the Step SD2, when the bar code corresponding to the article number included the order request is already registered into the
25 formal product master database 5b, the above-mentioned Steps SD3, SD4, SD5, SD6, SB2, and SC2 are skipped. In this case, the order request sent

by the merchant computer 2 is regarded as the regular order request (Step SA2).

The production managing computer 3 receives the regular order request from the merchant computer 2. The manufacturing department B manufactures the product in accordance with the regular order request (Step SB3). The bar code registered in the production managing computer 3 is used for the production management executed by the production managing computer 3.

The manufactured product is shipped after the bar code of the product is printed on a package box or a slip affixed on a package box (Step SB4). The distribution department C distributes the product in accordance with the printed bar code (Step SC3). The distribution managing computer 4 manages the distribution of the product with the printed bar code and also the bar code registered into the distribution managing computer 4 itself.

The merchant A delivers the product at a moderate timing (Step SAD2). The delivery is managed by the EDP system 8. The merchant A is provided with the product data including the article number, price, and the defined bar code of the product and the product data is registered into the EDP system 8 (Step SAD1). The EDP system

8 executes stock management of the merchant A with the registered product data.

The above-mentioned operation realizes the effective use of the limited number of bar codes.

5 That enables the usage of the EDP system to be actually effective for the makers and the merchants.

In the above-mentioned operation, the product data including the prices and the article 10 numbers are preliminarily prepared for the tentative product master database 5a. The preliminary preparation of those data requires the large number of steps. In order to reduce the number of such steps, it is desirable to reduce 15 the preliminary preparation to the minimum. The registering method is effective for individually registering the article data after the reception of the order request. Such a registering method has a disadvantage that it takes a certain time 20 to actually order the article after the reception of the order request. However, the advantage of using the conventional EDP system and treating the various kinds of articles offsets and outweighs the disadvantage.

25 Although the invention has been described in its preferred form with a certain degree of particularity, it is understood that the present

disclosure of the preferred form has been changed
in the details of construction and the
combination and arrangement of parts may be
resorted to without departing from the spirit and
5 the scope of the invention as hereinafter claimed.